SHSD Electrical Safety Engineering News

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ESH Coordinators Meeting

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SIXTY YEARS
OF DISCOVERY
1947-2007

BROOKHAVEN
NATIONAL LABORATORY

Office of Science
U.S. DEPARTMENT OF ENERGY

Safety Minute - Extension Cords and Power Strips.

- Required by code to be approved. (one way is to be NRTL listed)
- Required by code to be used according to any instructions in the listing or labeling.
- UL has instructions for Cord Sets (Extension Cords) and Relocatable Power Taps (RPT's or Power Strips)
- This info is covered in our new SHSD Safety Highlight Fact Sheet

BNL SHSD SAFETY HIGHLIGHT

BROOKHAVEN NATIONAL LABORATORY

Fact Sheet #1 - Extension Cords, Power Strips and OSHA

In the past, BNL has highlighted the requirement to purchase Nationally Recognized Testing Laboratory (NRTL) listed electrical equipment whenever possible. Along with this requirement comes an expectation that the equipment is used according to instructions included in the listing. This makes sense when you stop and think about it. As an example, you would not want to use a device intended for "indoor use only" outside in an unprotected environment.

Let's look at a typical case using the general purpose extension cord as an example. These items are termed "cord sets" in NRTL language and can have one or more load fittings. Extension cords that are NRTL listed have information related to conditions of use typically printed on a label attached near the plug end of the cord. Typical conditions of use include; 1) do not plug one extension cord into another; 2) do not run through doorways, holes in ceilings, walls or floors and 3) do not unplug by pulling on the cord. The next time you use an extension cord, look for this tag and become familiar with the instructions for its use.

Another commonly used electrical component at BNL is the power strip. As with extension cords and all other electrical equipment, these devices must be used in accordance with OSHA Standard 29 CFR §1910 Subpart S (Electrical). This standard requires that equipment in use be approved (1910.303(a)). One avenue for this approval is to be NRTL listed. Perhaps the most commonly known NRTL is Underwriters Laboratories (UL). In addition to approval, OSHA requires that "listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling" (1910.303(b)(2)). Also see NFPA 70, Article 110.2 and Article 110.3(b).

In the language of UL, power strips are referred to as Relocatable Power Taps (RPTs) and UL gives specific guidance for their use. This guidance is available on their web site at http://www.ul.com/ and includes the following; 1) they are intended to be directly connected to a permanently installed branch circuit receptacle, 2) they are not intended to be series connected (daisy chained) to other relocatable power taps or to extension cords, 3) they are not intended to be permanently secured, nor are they intended to be used as a substitute for fixed wiring and 4) the cords of relocatable power taps are not intended to be routed through walls, windows, ceilings, floors or similar openings.

Unfortunately, the business end of some companies may not be aware of these requirements so be careful here. **You may see typical applications on company web sites that are in disagreement with the instructions included in the NRTL listing.**

Using NRTL listed equipment according to the instructions provided in the listing is a requirement at BNL as per OSHA, and the National Electric Code (NEC), so look for an NRTL marking on your electrical equipment and use the equipment accordingly. Doing so will create a safer environment for our co-workers, and ourselves.

A power strip is **not** intended to be series connected (daisy chained) with another power strip or an extension cord

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http://www.bnl.gov/esh/shsd/Safety_Facts.asp

Some Other Recent Electrical SHSD News

- **Noncompliance Tracking System (NTS) Submittals**
  - Cable Trays
  - Electrical Equipment Inspections
  - Work Space Around Electrical Equipment

- **Tier I Inspections**
  - Increased Tier I Participation
  - Guidance Information to be added to Tier I Subject Area

- **EEI Program**
  - Due Dates
  - Addition to Section in Electrical Safety Subject Area

10CFR851 NTS Submittals

Cable Trays

- Numerous cases of overloading, grounding and bonding issues, mixed classification of cable usage and other issues exist in cable trays throughout the Laboratory. (NFPA 70 Art. 392 and NFPA 70E Arts 205.4, 215.3, 420.1(C), 450.3(A)(3) and OSHA 29CFR1910.305(a)(3)

10CFR851 NTS Submittals

Electrical Equipment Inspection

- Multiple pieces of Laboratory manufactured electrical equipment used throughout the Laboratory are not approved (acceptable to Authority Having Jurisdiction (AHJ)). (NFPA 70 Art. 110.2, NFPA 70E Art 400.2 and OSHA 29CFR1910.303(a)(3))

10CFR851 NTS Submittals

Work Space Around Electrical Equipment

- Numerous electrical panels and disconnect switches throughout the Laboratory do not meet minimum working space and clearance requirements. (NFPA 70 Art 110.26A, NFPA 70E Art. 400.15 and OSHA 29CFR1910.303(g)(1))

Tier I Inspections

- SHSD Tier I increased participation
- Written Tier I guidance for the electrical portion of these inspections is in the final stages of development and will be available soon as an addition to the Tier I Subject Area.

EEI Program

- Due date for “Other than Low Hazard” equipment review is 9/30/07.
- Due date for all equipment is 9/30/09
- “Implementing the EEI Program” section is in the final stages of development and will be added to the Electrical Safety Subject Area